

Southern Resident Killer Whales

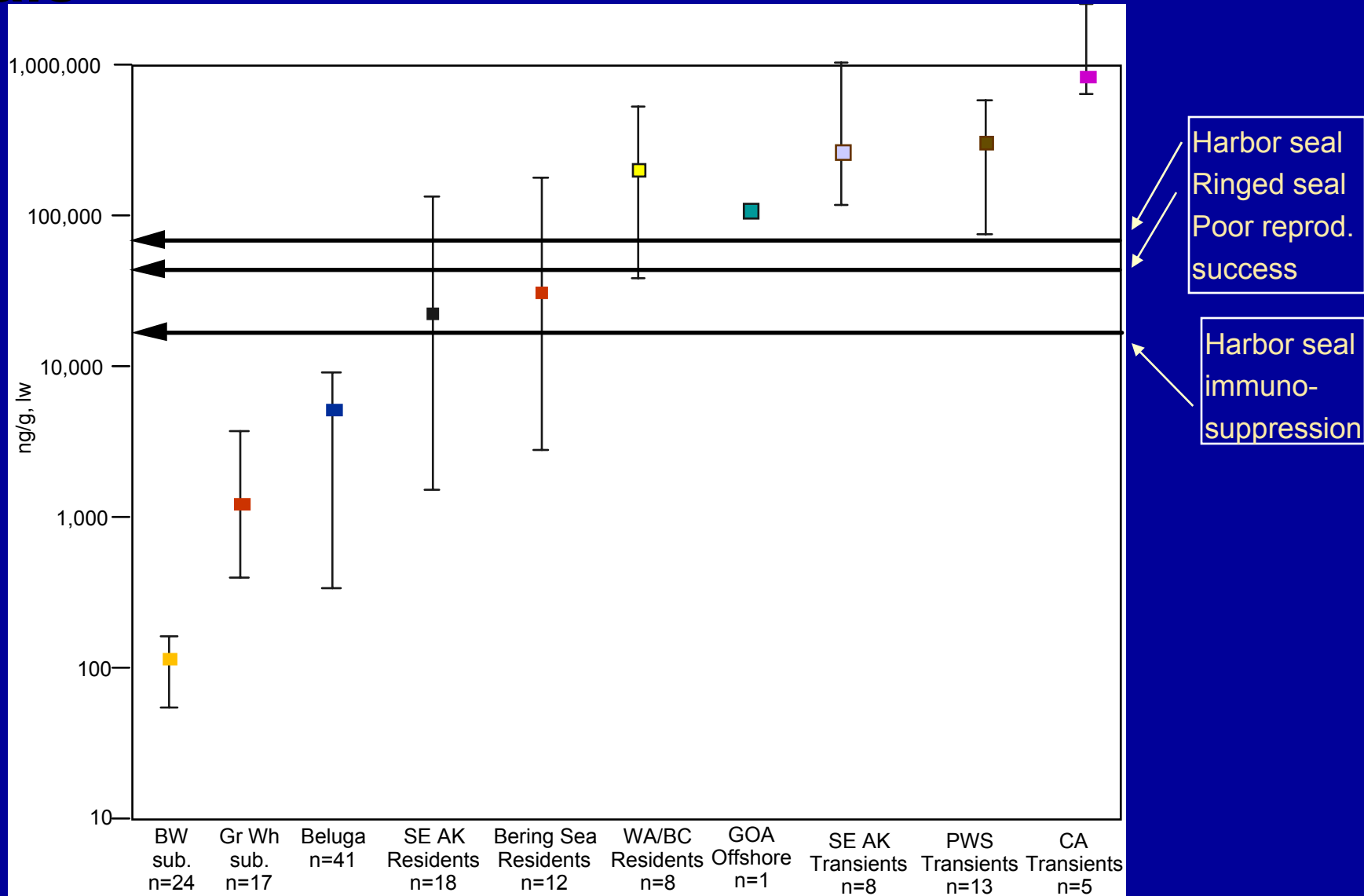


- Population has declined 20% from 1996 - 2001

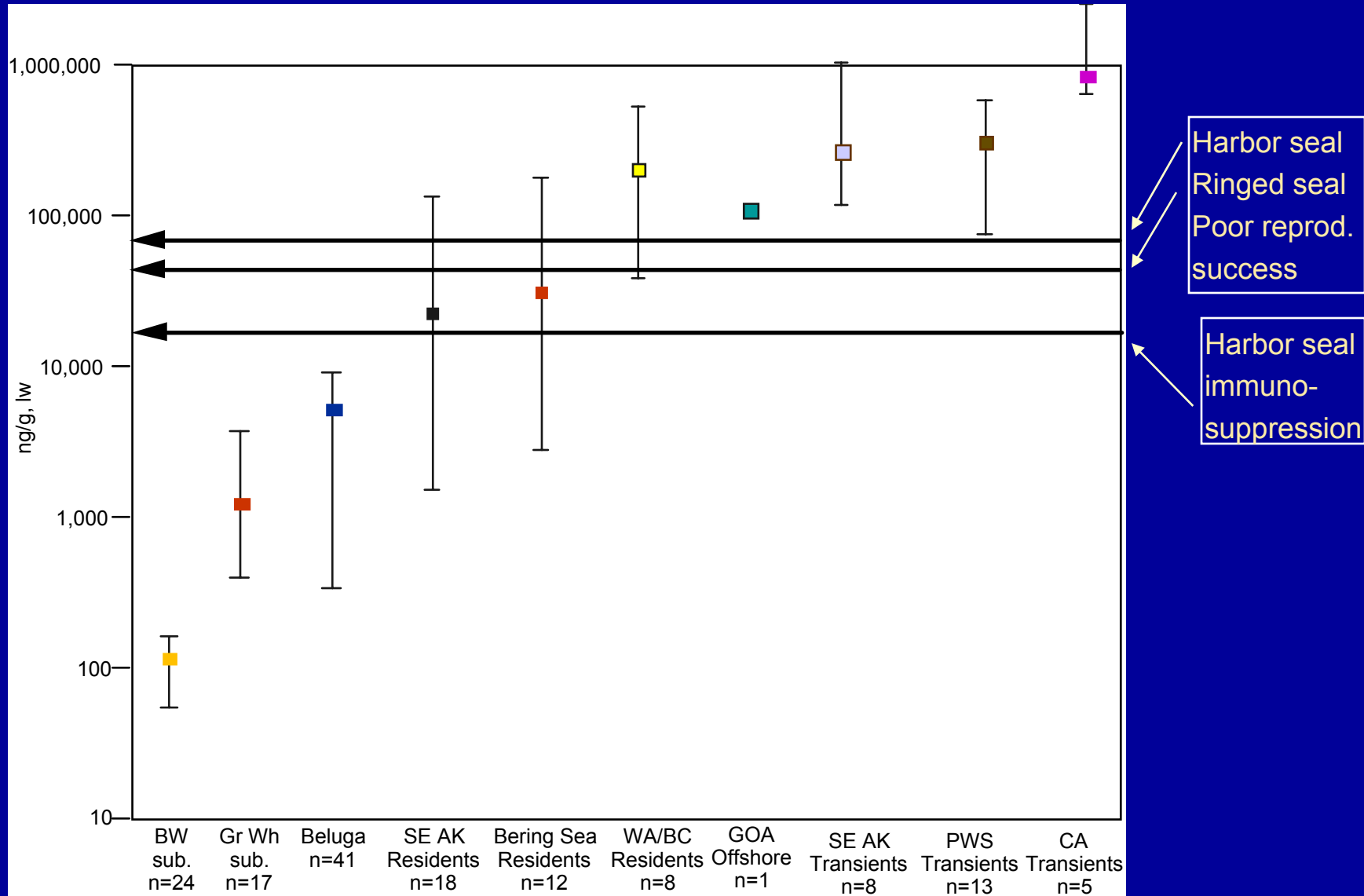
- Adult male survival appears to be lower than survival of NR adult males

- Exposure to high levels of OCs may play an indirect role in combination with poor nutrition or other factors

Σ PCBs in blubber of cetaceans compared to levels associated with adverse effects in seals



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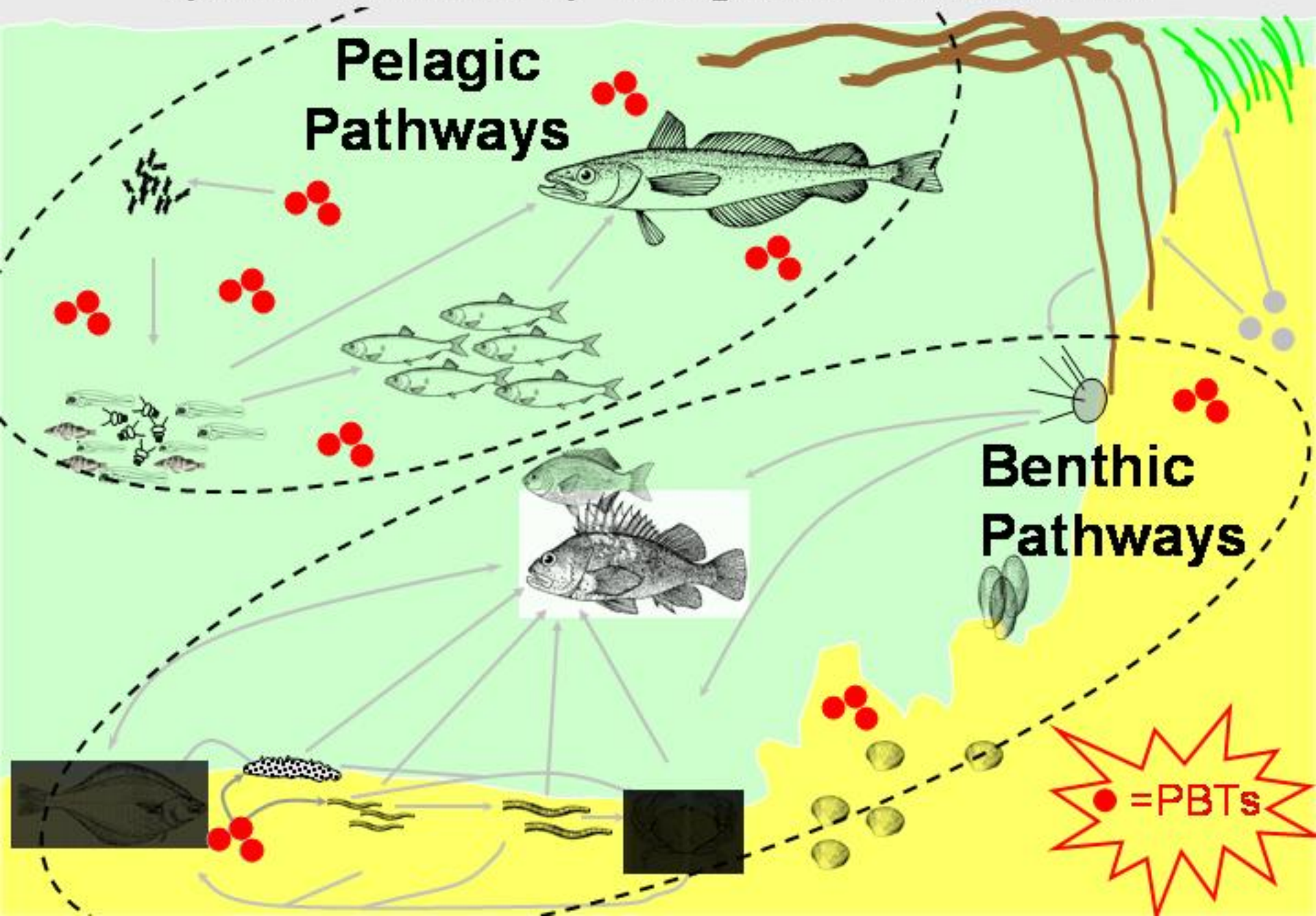
- **Develop food web models for contaminant fluxes**
- **Quantify contributions from different prey species**

System Dominated by "Background" Contamination

Pelagic Pathways

Benthic Pathways

● = PBTs

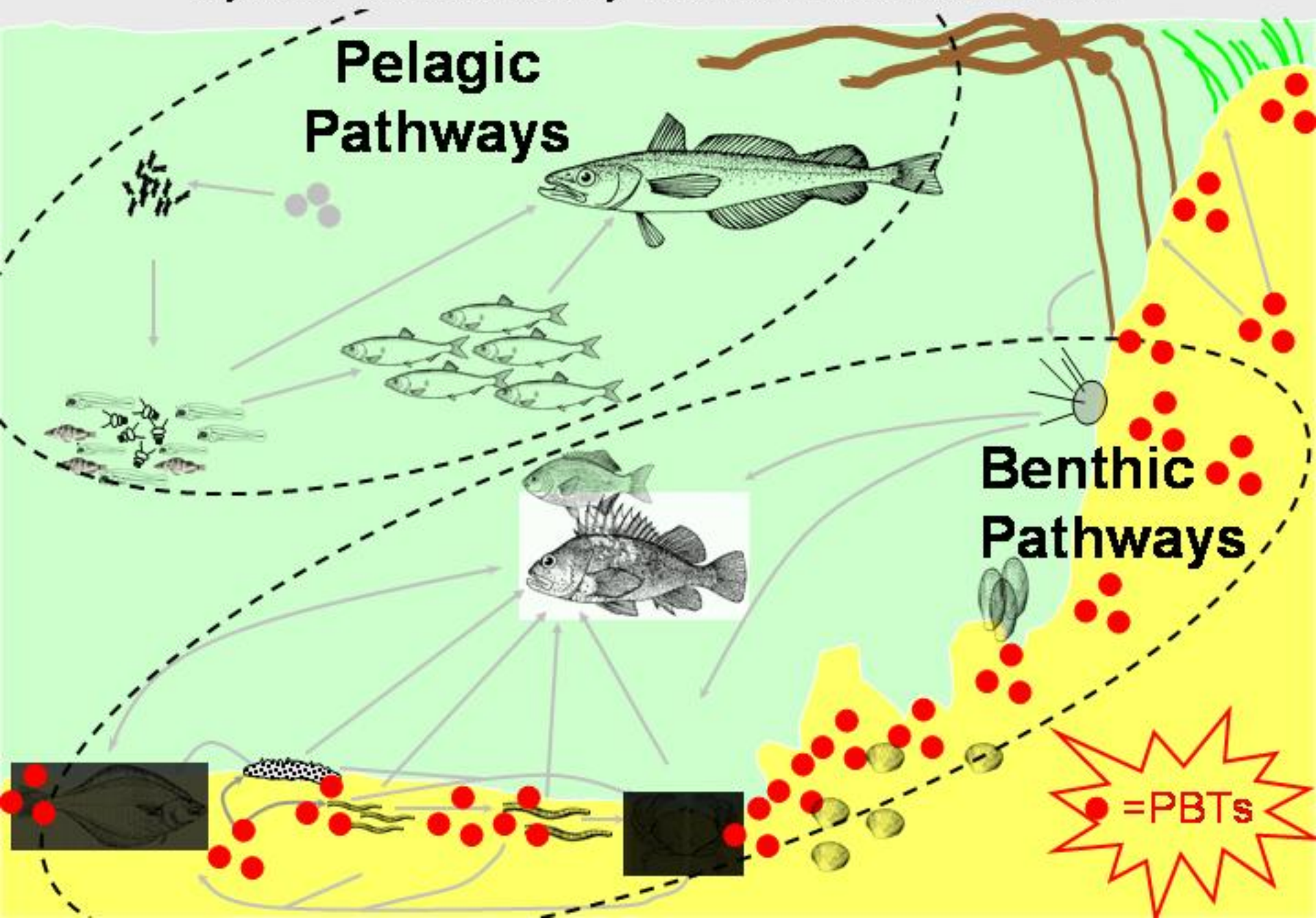


System Dominated by Sediment Contamination

Pelagic Pathways

Benthic Pathways

=PBTs



Number of composite samples of salmon planned for contaminant analysis

Location	Species				
	Chinook	Sockeye	Pink	Chum	Coho
SE Alaska (mixed stocks)					5
N. BC coast (Skeena)	5	5	5		
C. BC coast (Kimsquit)				5	
Georgia Basin (Fraser)	5	5			
Puget Sound (mixed stocks)					5
Puget Sound (Skagit)			5		
Puget Sound (Nook/ Nisq)	5			5	
WA/OR coast (Columbia)	5				
CA coast (Sacramento)	5				

N
↓
S

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- Develop food web models for contaminant fluxes.
- Quantify contributions from different prey species.
- If significant inputs of PBTs are determined to arise from manageable sources (i.e. contaminated sediments), sequester or remove sources.

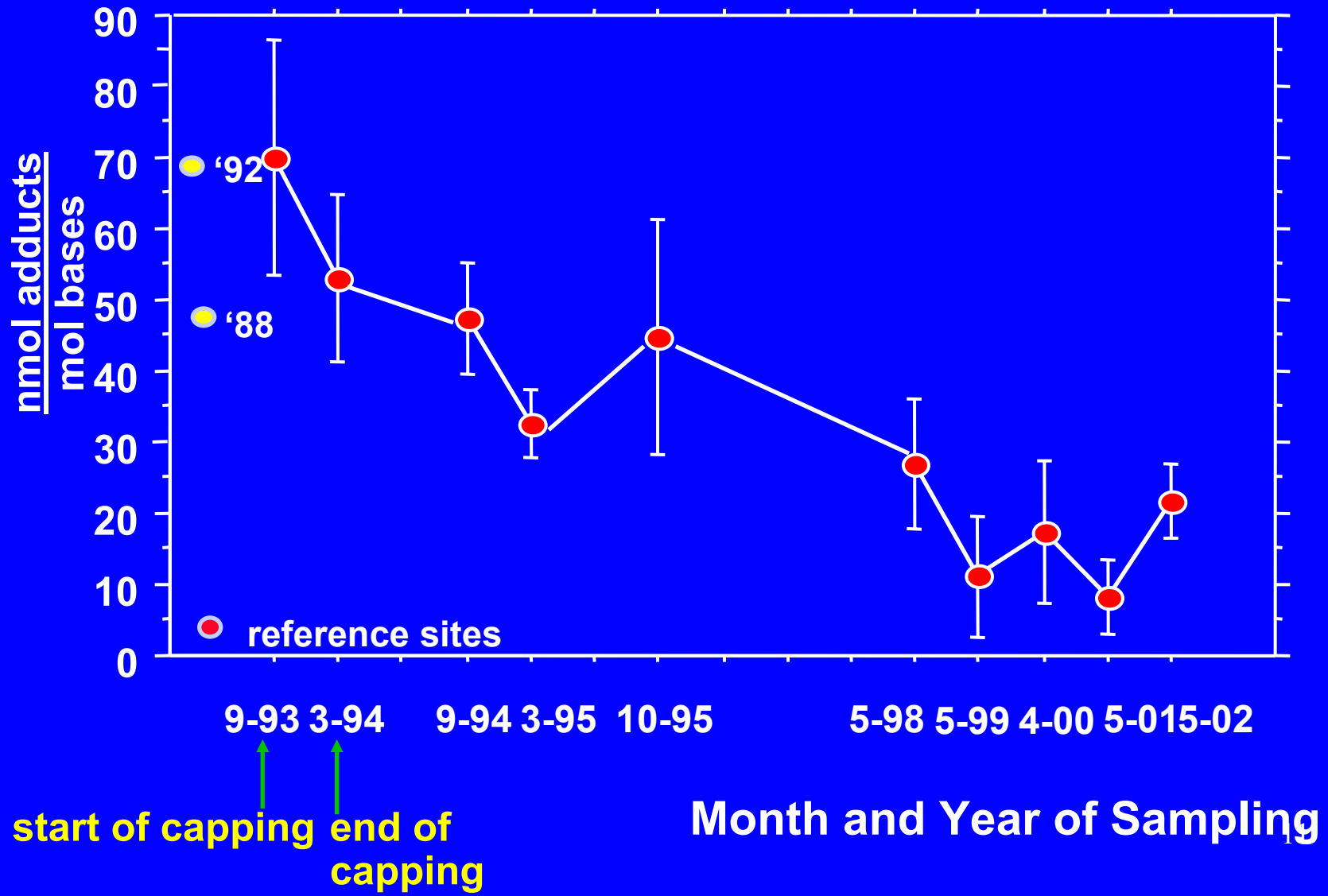


**Sediment capping,
November 1993**

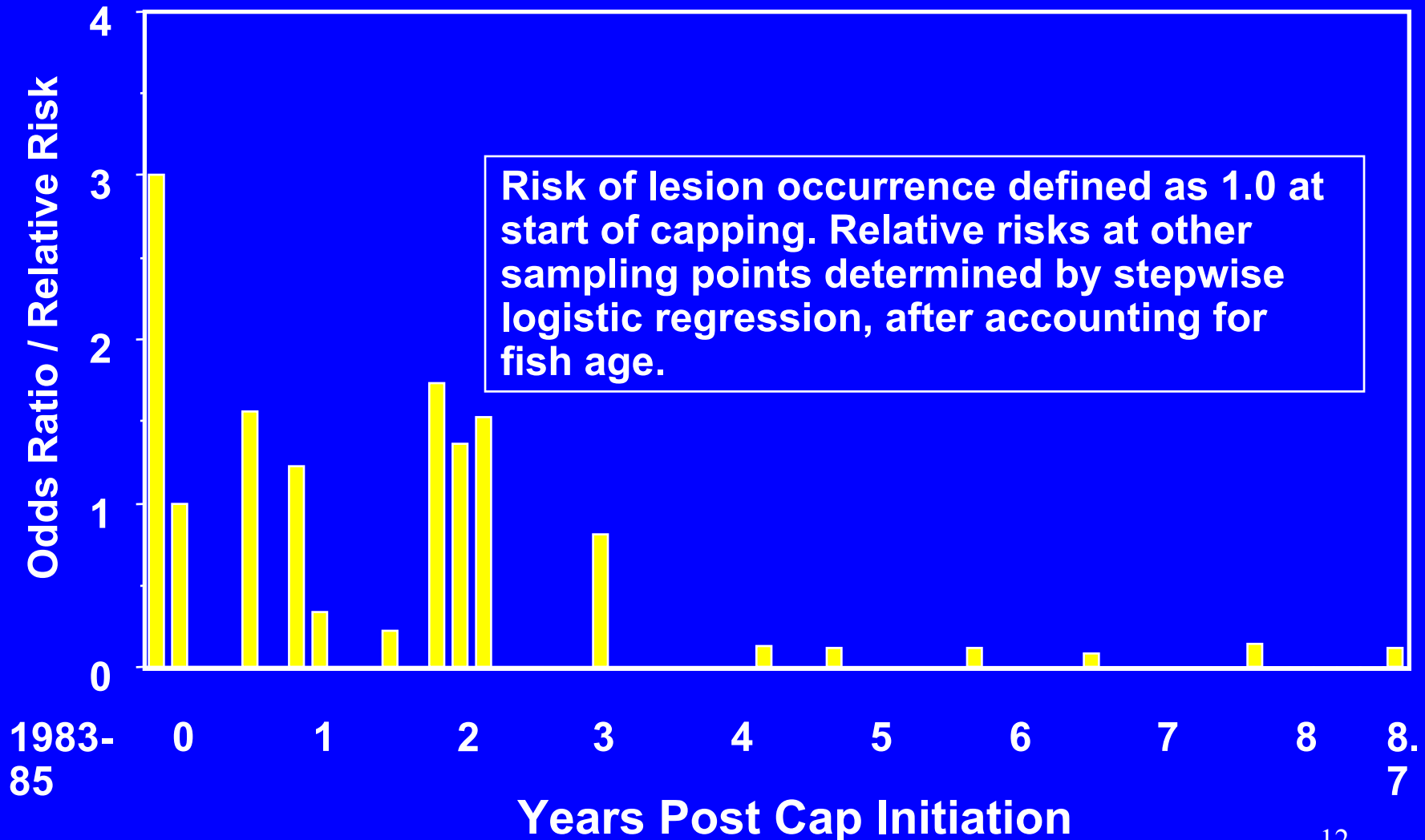


Sheet pile wall, Wyckoff site December 2000

Hepatic DNA Adducts, Eagle Harbor English Sole



Toxicopathic Liver Lesion Risk in English Sole Eagle Harbor, 1983-May 2002



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Polybrominated diphenyl ethers (PBDEs)

- Disrupt thyroid hormone actions; cognitive deficits in mammals.
- Body burdens in humans and wildlife are doubling every 3-5 years.
- Levels in North America are order of magnitude higher than levels in Europe. Banned in Sweden since 1997, levels may be decreasing now.
- Slated to be banned in California in 2007.
- Deca-PBDEs are not being banned; recent evidence showing environmental debromination to penta- and octa- forms.
- Levels in 5-10% of CA pinnipeds exceed